Priority Queue

insert (e)

removeMin / removeMax

min() / max()

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1 4 2 9 8 6

	PQ
insert(1)	1
insert(4)	1, 4
insert(2)	1, 2, 4
insert(9)	1, 2, 4, 9
removeMin()	2, 4, 9
min()	(2)
insert(8)	2, 4, 8, 9
insert(6)	2, 4, 6, 8, 9

implimentation of Priority Queue

1) Sequence

unsorted

4 - 2 - 6 - 8 - 1

insert() : O(1)

remove Min()/min() : O(n)

1 - 2 - 5 - 8

insert() : O(n)

remove Min()/min() : O(1)

2) Heap

Wr 13

1. Show the output from the following sequence of priority queue ADT operations. The entries are key-element pairs, where sorting is based on the key value:
insert(5, a), insert(4, b), insert(7, i), insert(1, d), removeMin(), insert(3, j), insert(6, c), removeMin(), removeMin(), insert(8, g), removeMin(), insert(2,h), removeMin(), removeMin()

Operation	PQ
insert(5,a)	(5, a)
insert(4,b)	(4, b), (5, a)
insert (7,i)	(4, b), (5, a), (7, i)
insert(1,d)	(1, d), (4, b), (5, a), (7, i)
removeMin()	(4, b), (5, a) (7 i)
insert(3,j)	(3, j), (4, b), (5, a), (7 i)
insert(6,c)	(3, j), (4, b), (5, a) [6, c), [7, i)
removeMin()	(4, b), (5, a) [6, c), [7, i)
removeMin()	(5, a), [6, c), [7, i)
insert(8,g)	(5, a), [6, c), [7, i), (8, 9)
removeMin()	[6, c), [7, i), (8, 9)
insert(2,h)	(2, h), [6, c), [7, i), (8, 9)
removeMin()	[6, c), [7, i), (8, 9)
removeMin()	[7, i), (8, 9)

3) Stack w/ PQ

Varible m = 0

push => insert (m, e) ; m--;
pop => removeMin; m++;

4) Queve w/ PQ

Variable m = 0

enqueve insert (m, e); m++;
dequeve removeMin(); m--;